



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,962	10/28/2003	Chang-Fu Kuo	BHT-3212-45	4572

7590 11/14/2006

TROXELL LAW OFFICE PLLC
SUITE 1404
5205 LEESBURG PIKE
FALLS CHURCH, VA 22041

EXAMINER

VUONG, QUOCHIE B

ART UNIT	PAPER NUMBER
----------	--------------

2618

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/693,962	Applicant(s) KUO ET AL.	
	Examiner Quochien B. Vuong	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17, 19, 20, 24-28, 30, 31 and 34-36 is/are rejected.
- 7) ☒ Claim(s) 18, 21-23, 29, 32 and 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to applicant's response filed on 07/26/2006. Claims 17-36 are now pending in the present application. **This action is made final.**

Drawings

1. The drawings were received on 07/26/2006. These drawings are acceptable.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 2618

4. Claims 17, 19, 20, 24-28, 30, 31, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montalvo et al. (US 6,693,969) in view of Lieu (US 5,519,887).

Regarding claims 17 and 28, Montalvo et al. disclose a phase lock loop (figure 1) for receiving a baseband signal having an input frequency and modulating the baseband signal to be a corresponding RF signal for transmitting and the method for generating RF signal by utilizing the phase lock loop, the phase lock loop comprising: a frequency synthesizer (40) for generating a local oscillating signal having a local oscillating frequency; a first programmable divider (92) for dividing the frequency of the local oscillating signal by a first programmable divisor to generate a reference signal; a modulator (24) for modulating the frequency of the reference signal according to the baseband signal to generate a corresponding first comparison signal; a phase detector (32) for detecting phases of the first comparison signal and a second comparison signal, and outputting a corresponding current-controlled I/O signal in responsive to the phase difference of two comparison signals; a loop filter (34) for filtering the control current to output a control voltage; an oscillating signal generator (28) for generating the corresponding RF signal for transmitting according to the control voltage, the RF signal being fed back as a feedback signal; and a frequency converter (84) for receiving the feedback signal and the local oscillating signal to output the second comparison signal to the phase detector in responsive to the frequency difference of the feedback signal and the local oscillating signal, wherein provided that a carrier frequency of the RF signal substantially equals to a predetermined value (column 2, line 58 – column 5, line

Art Unit: 2618

40). Montalvo et al. do not specifically disclose a charging pump for receiving the current-controlled I/O signal and accordingly outputting a corresponding control current and wherein the first programmable divisor of the first programmable divider as well as the corresponding local oscillating frequency of the local oscillating signal are capable of being programmable-controlled. However, Lieu (figure 4) discloses a phase lock loop to comprise a charging pump (408) between the phase detector and loop filter and a first programmable divisor of a first programmable divider as well as the corresponding local oscillating frequency of the local oscillating signal are capable of being programmable-controlled (column 2, line 50-55; and column 6, line 4 – column 8, line 29). Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to adapt the charging pump and the programmable-controlled first programmable divisor and the corresponding local oscillating frequency of the local oscillating signal of Lieu to the phase lock loop of Montalvo et al. for generating charge/discharge control signal to the loop filter and providing accurate, stable and digitally programmable frequency output.

Regarding claims 19, 20, 30 and 31, Montalvo et al. and Lieu disclose the phase lock loop and method of claims 17 and 28 above; in addition, Montalvo et al. disclose a plurality of other frequency dividers (figure 1, items 82 and 90). Therefore, it would have been obvious to put one of other frequency dividers as a second programmable divider for dividing the local oscillating signal before entering the frequency converter as an alternative circuit configuration with the same result.

Regarding claims 24 and 34, Montalvo et al. and Lieu disclose the phase lock loop and method of claims 17 and 28 above; in addition, Montalvo et al. disclose wherein the phase lock loop is utilized in a RF signal transmission device of a wireless communication system (column 1, lines 14-25).

Regarding claims 25 and 35, Montalvo et al. and Lieu disclose the phase lock loop and method of claims 17 and 28; in addition, Montalvo et al. disclose wherein the phase lock loop merely comprises the only frequency synthesizer (40) to generate the single local oscillating frequency of the local oscillating signal (figure 1).

Regarding claims 26 and 27, Montalvo discloses wherein the oscillating signal generator comprises a voltage-controlled oscillator (figure 1, VCO 28), and a third frequency divider (90) coupled to an output of the VCO.

Regarding claim 36, Montalvo et al. and Lieu disclose the method of claim 9 above; in addition, Montalvo et al. disclose wherein at least one filter (97) is employed to filter the signals in the phase lock loop (column 5, lines 22-33).

Allowable Subject Matter

5. Claims 18, 21-23, 29, 32 and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 18, 21, 22, 29, and 32, Montalvo et al. and Lieu disclose the phase lock loop and method of claims 17 and 28 above. However, Montalvo et al. and Lieu fail to disclose wherein the phase lock loop and method further comprises a phase

Art Unit: 2618

shift generator for shifting the phase of the reference signal of the first programmable divider by 90 degrees, and then inputting the phase-shifted reference signal into the modulator.

Regarding claim 23 and 33, Montalvo et al. and Lieu disclose the phase lock loop and method of claims 19 and 39 above. However, Montalvo et al. and Lieu fail to disclose wherein the transmission frequency of the RF signal is F_{tx} , the local oscillating frequency of the local oscillating signal is F_{LO} , the first programmable divisor of the first programmable divider is M, the second programmable divisor of the second programmable divider is N, and F_{tx} , F_{LO} , M, and N satisfy the following equation: $F_{tx} = [(M+N)/(M \times N)] \times F_{LO}$.

Response to Arguments

6. Applicant's arguments with respect to claims 17 and 28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2618

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quochien B. Vuong whose telephone number is (571) 272-7902. The examiner can normally be reached on M-F 9:30-18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2618

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Quochien B. Vuong
Nov. 07, 2006.


QUOCHIE B. VUONG
PRIMARY EXAMINER